

BFX-UA300

Hardware Unit Test Report

4 *MIC Test

Hardware version	FW version	Sample No.
V025-DVT2	Google TV	S/N: YUX07V6-2154002568-02S2N

Test DVT2 sample for far field MIC sealing issue: 2021/3/8

SPONGE_MIC_SILICON_140X24X0D5T rubber

--1.1mm

--0.5mm non-O-ring

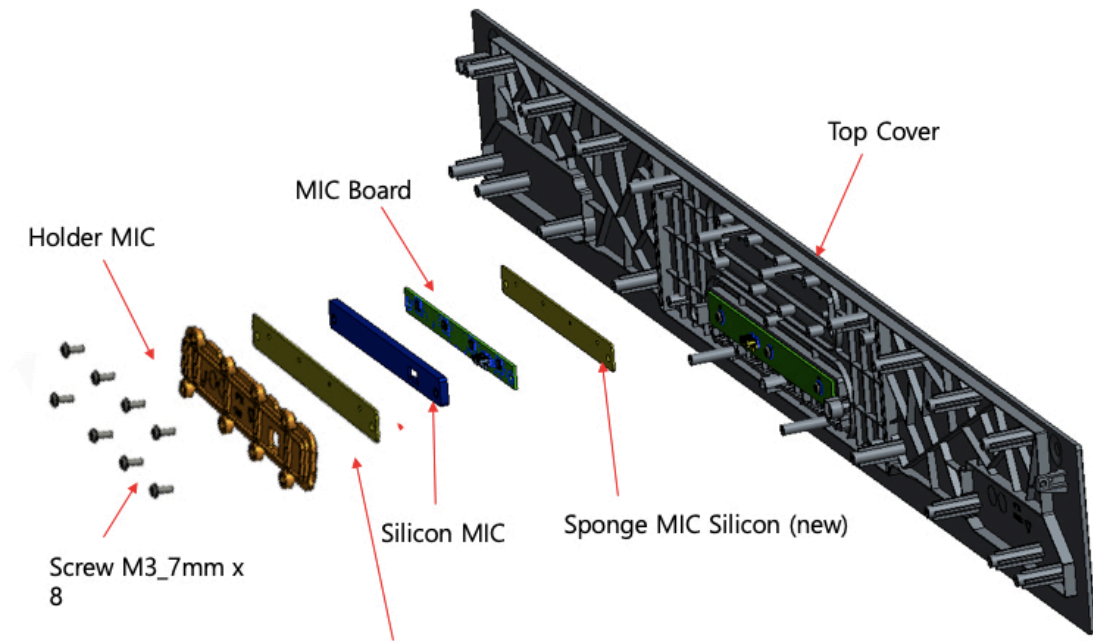
--0.5mm O-ring

SILICON_MIC_UA300 rubber

--Correct rubber to fit MIC board.

Do some MIC sealing solution.

1. Silicon_mic+sponge_mic_1.1t, see picture a1.
2. Silicon_mic(add 0.6mm)+sponge_mic_0.5t(o-ring), see picture a2.
Small o-ring faces to mic board, bigger o-ring faces to top cover.
3. Silicon_mic(add 0.6mm)+sponge_mic_0.5t, see picture a3.
4. Silicon_mic(add **0.9mm**)+sponge_mic_0.5t(o-ring), see picture a4.
5. Duplicate item4 to another top cover, see picture a5.
6. SWAP MIC boards for item4 and item5, see picture a6.
7. Paste the adhesive between sponge_mic_0.5t(o-ring) and MIC board, see picture a7.
8. Duplicate item7 to another op cover, see picture a8.

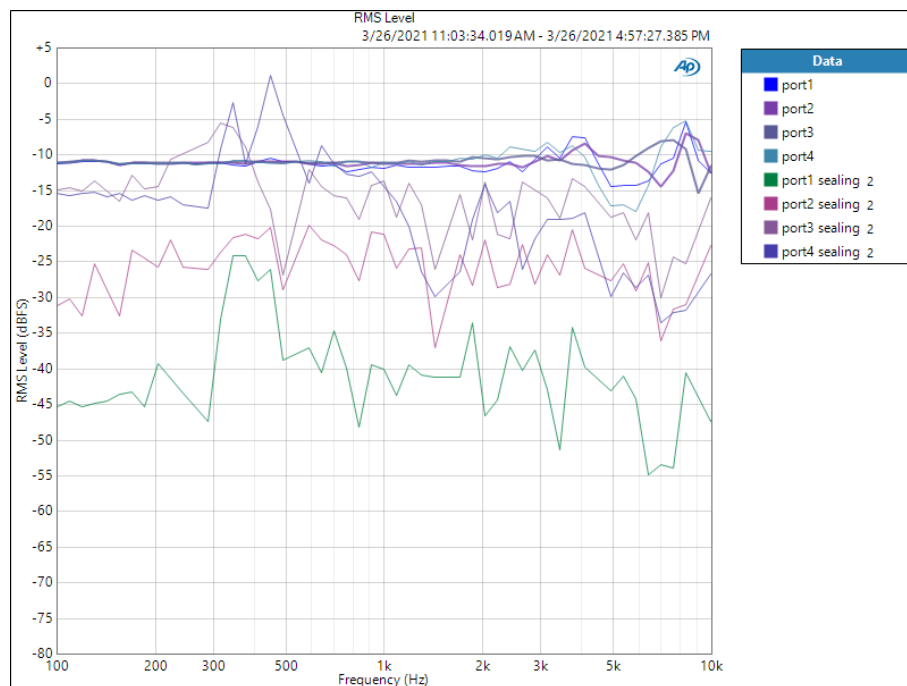


to add 0.9t thickness

Here we fix silicon_mic rubber and MIC board, but change sponge_mic_silicon rubber for different thickness and o-ring. At the same time, we add a rubber sheet behind the silicon_mic rubber to add more pressure to fill 0.6mm gap and find better sealing.

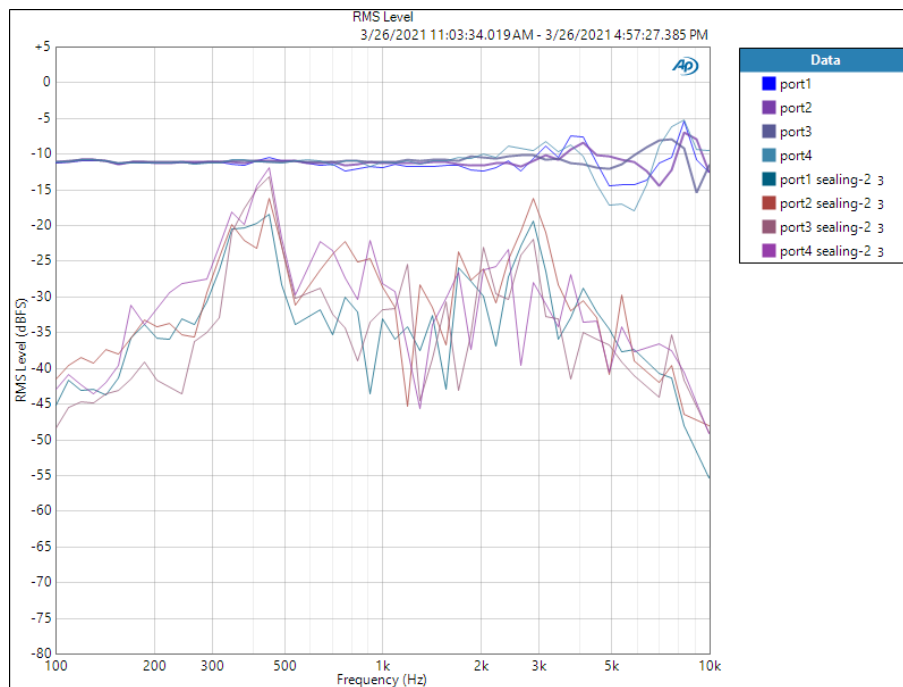
Test results:

1. Silicon_mic+sponge_mic_1.1t



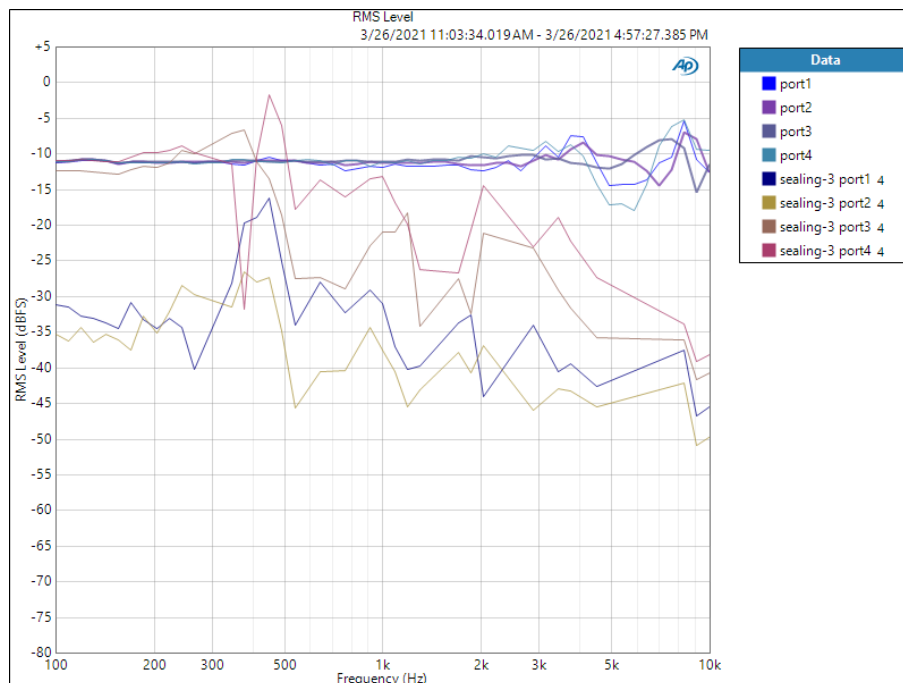
Picture a1. Only MIC 1 looks better.

2. Silicon_mic(0.6mm)+sponge_mic_0.5t(o-ring)



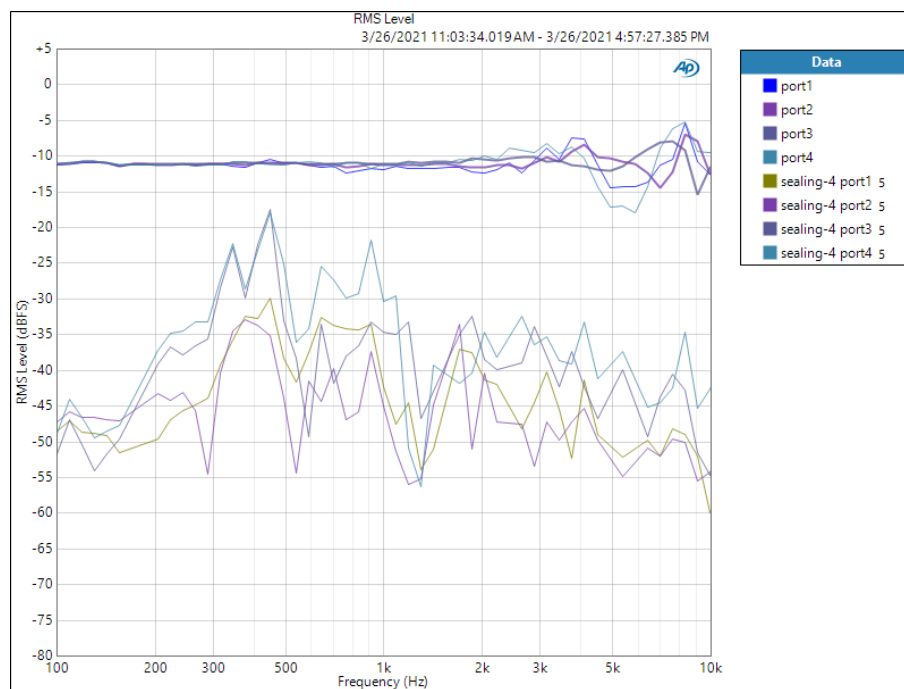
Picture a2. Sponge_mic_0.5t(o-ring) is better than 1.1t

3. Silicon mic(0.6mm)+sponge_mic_0.5t



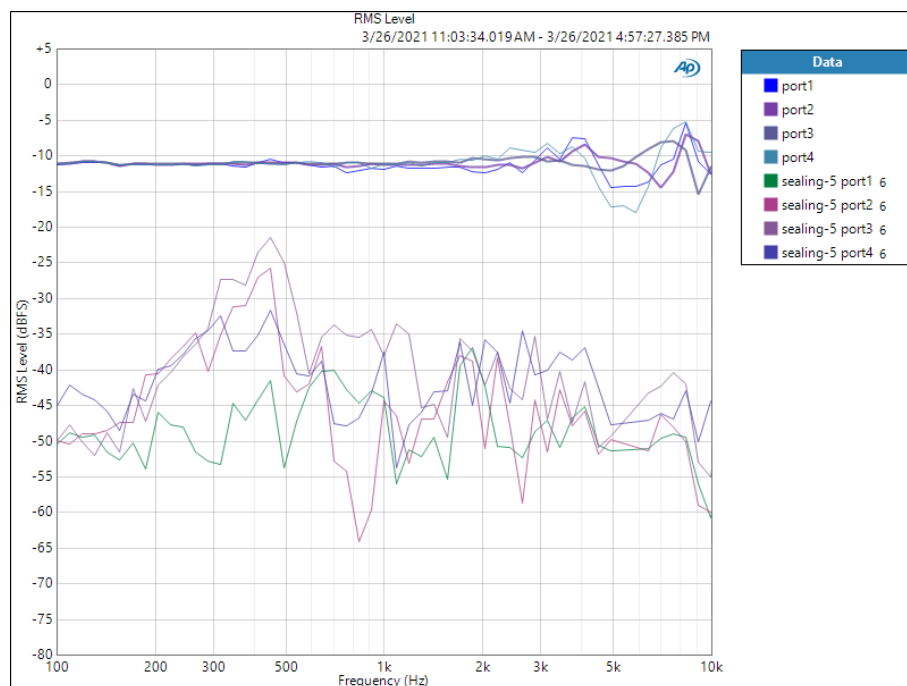
Picture a3. sponge_mic_0.5t non o-ring looks NG

4. Silicon mic(0.9mm)+sponge_mic_0.5t(o-ring)



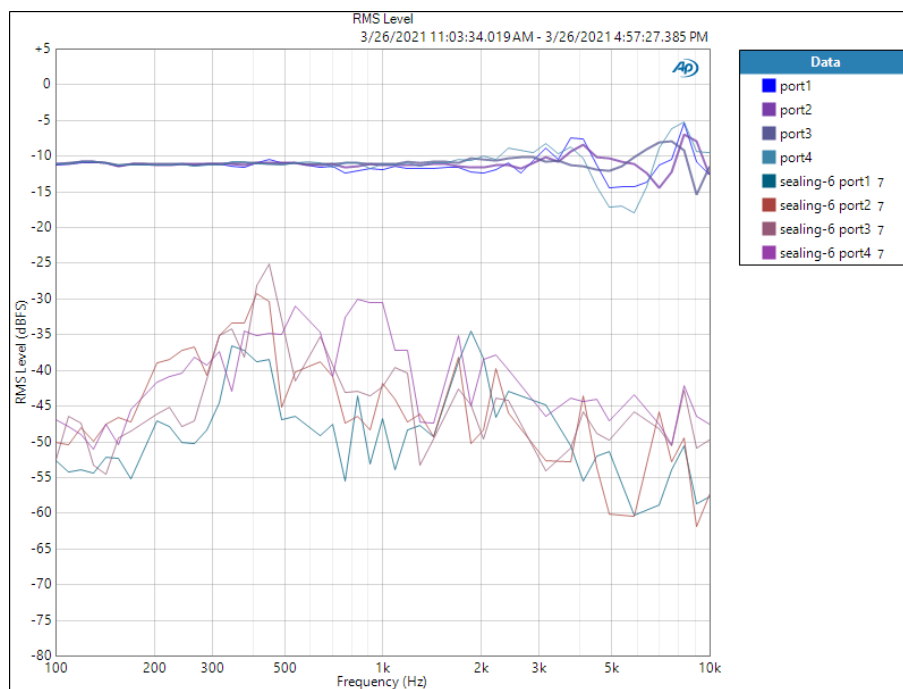
Picture a4. Add a rubber for adding sealing pressure.

5. Duplicate item4 to another top cover.



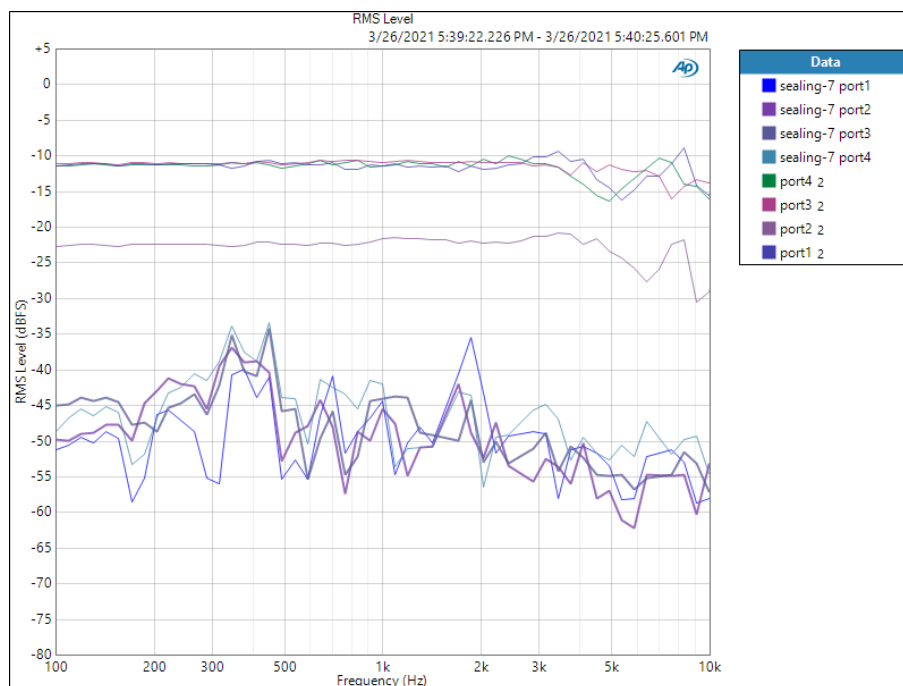
Picture a5. Duplicate to another top cover seems work.

6. SWAP MIC boards for item4 and item5



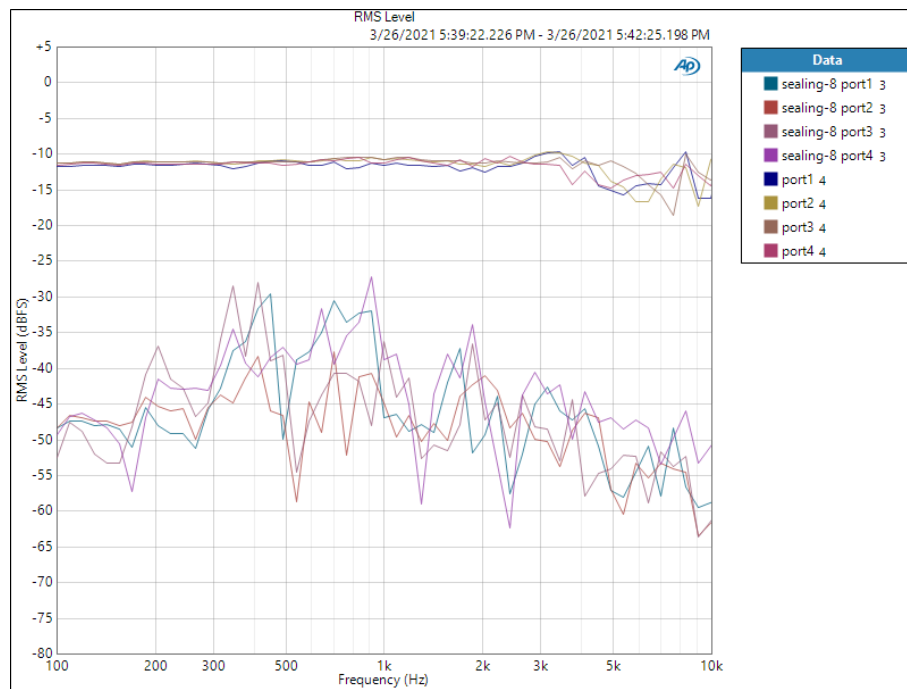
Picture a6. SWAP mic board for clarified MIC soldering ring issue.

7. Paste the adhesive between sponge_mic_0.5t(o-ring) and MIC board



Picture a7. Add adhesive can test pass with small mic hole.
Mic2 hole is blocked, but we can ignore it.

8. Duplicate item7 to another op cover



Picture a8. Duplicate to another top cover with bigger mic hole.

Summary

1. By the test results, sponge_mic_silicon_1.1t has no better sealing, but sponge_mic_silicon_0.5t with o-ring has better sealing although it still can not achieve to 25dB spec.
Suggest using 0.5t with o-ring.
2. Add silicon_mic rubber thickness holder mic side can add higher pressure for sealing, as our test 0.9mm is ok. 0.6mm is not thickness enough for sealing.
Suggest 0.9~1.0mm is ok.
3. By swap mic board test, we can confirm the bad sealing is not caused by soldering o-ring of mic component. SMT has weed out the NG soldering o-ring mic board.
4. Add adhesive between sponge_mic_silicon_0.5t(o-ring) with mic board has better sealing and can achieve to 25dB spec. The adhesive needs fittable holes to fit mic holes of mic board.
Suggest not over o-ring but and less mic hole.
5. As the test results, we also can see 300 Hz to 500 Hz range has a little over spec. the duplicate top cover has 1K Hz. We suspect it is caused by assembly issue.